Paper-8: Cost Accounting and Financial Management

Time Allowed : 3 Hours **Full Marks :** 100

Question No.1: (Compulsory question) **(6 x 2 = 12)**

(a) List the objective of CAS-4.

Answer:

Objectives of CAS-4: Cost Accounting Standard on Cost of Production for Captive Consumption are:

(i) The purpose of this standard is to bring uniformity in the principles and methods used for determining the cost of production of excisable goods used for captive consumption.

(ii) The cost statement prepared based on standard will be used for determination of assessable value of excisable goods used for captive consumption.

(iii) The standard and its disclosure requirement will provide better transparency in the valuation of excisable goods used for captive consumption.

(b) Calculate the Economic ordering quantity from the following information:

Consumption of materials per annum : 20,000 kg ; Order placing cost per order: ₹ 50; Cost per kg. of raw materials :₹ 4; Storage costs - 10% on average inventory.

Answer:

$$\textbf{EOQ} = \sqrt{\frac{2AS}{C}},$$

where A = Annual demand/consumption, S = Ordering cost per order, c = carrying cost per unit per annum

$$= \sqrt{\frac{2 \times 20{,}000 \times 50}{4 \times 0.10}}$$

= 2236.07 = 2236 units.

(c) Compute the Inventory turnover ratio from the following information:

Opening Stock - ₹50,000; Closing Stock - ₹80,000; Material Consumed - ₹3,90,000

Answer:

(i) Inventory turnover ratio (Refer to working note)

$$= \frac{\text{Cost of stock of raw material consumed}}{\text{Average stock of raw material}}$$

$$= \frac{₹\,3{,}60{,}000}{₹\,65{,}000} = 5.54 \text{ times}$$

(ii) Average number of days for which the average inventory is held

$$= \frac{365\ days}{Inventory\ turnover\ ratio} = \frac{365\ days}{5.54}$$

= 65.88 days = 66 days.

Working note:

		₹
Opening stock of raw material	=	50,000
Add: Material purchases during the year	=	3,90,000
Less: Closing stock of raw material	=	80,000
Cost of stock of raw material consumed		3,60,000

$$\text{Average stock of raw material} = \frac{1}{2}\left\{\begin{matrix}\text{Opening stock of}\\ \text{raw material}\end{matrix} + \begin{matrix}\text{Closing stock of}\\ \text{raw material}\end{matrix}\right\}$$

$$= \frac{1}{2}\{₹\ 50,000+₹80,000\} = ₹65,000$$

(d) During August 2013, the following information is obtained from the Personnel Department of a manufacturing company.

Labour force at the beginning of the month 3900 and at the end of the month 4100. During the month, 155 people left while 90 persons were discharged. 280 workers were engaged out of which only 20 were appointed in the vacancy created by the number of workers separated and the rest on account of expansion scheme. Calculate the Labour Turnover under Flux method.

Answer:

Labour turnover rate:

It comprises of computation of labour turnover by using following methods:

(i) Separation Method:

$$= \frac{\text{No. of workers left} + \text{No. of workers discharged}}{\text{Average number of workers}} \times 100$$

$$= \frac{(155+90)}{(3,900+4,100)\div 2} x100$$

$$= \frac{245}{4,000} x100 = 6.125\%$$

(ii) Replacement Method:

$$= \frac{\text{No. of workers replaced}}{\text{Average number of workers}} x100$$

$$= \frac{20}{4000} x100 = 0.5\%$$

(iii) New Recruitment:

$$= \frac{\text{No. of workers newly recruited}}{\text{Average number of workers}} \times 100$$

$$= \frac{260}{4000} \times 100 = 6.5\%$$

(iv) Flux Method:

$$= \frac{\text{No. of separations + No. of accessions}}{\text{Average number of workers}} \times 100$$

$$= \frac{245+280}{4000} \times 100 = 13.125\%$$

(e) Actual hours worked: 5,55,000 out of which 30,000 hours were for training of the workers, 50 % of which is estimated to be productive only. If a company has lost 80,000 labour hours and if the contribution margin is 20% on sales, estimate the profit lost/foregone due to labor turnover, if the contribution per hour is @ ₹ 500.

Answer:
Total hours lost: 80,000 hrs (given); Loss of contribution = 80,000 x 500 = ₹ 4,00,00,000

(f) Write short notes on Generally Accepted Cost Accounting Principles (GACAP).

Answer:

Like Generally Accepted Accounting Principles (GAAP) for Financial Accounting, the Cost Accounting has the Generally Accepted Cost Accounting Principle (GACAP) which are followed by the Indian industry are summarized as below.

The broad principles as applicable to all the elements of cost are:

(i) When an element of cost is accounted at standard cost, variances due to normal reasons are treated as a part of the element wise cost. Variances due to abnormal reasons will not form part of the cost.

(ii) Any subsidy / grant / incentive and any such payment received / receivable with respect to the input cost is reduced from cost for ascertainment of the cost of the cost object to which such amount pertains.

(iii) Any abnormal cost where it is material and quantifiable will not form part of the cost.

(iv) Penalties, damages paid to statutory authorities or other third parties will not form part of the Total Cost.

(v) Cost reported under various elements of cost will not include Imputed Costs.

(vi) Finance costs incurred in connection with the acquisition of resources such as material, utilities and the like will not form part of the cost of such resources.

(vii) Any credits or recoveries from employees or suppliers or other parties towards the costs incurred by the entity for a resource will be netted against such cost.

(viii) Except otherwise stated, the measurement of costs for Cost Accounting purposes will follow the same principles as set out in Generally Accepted Accounting Principles applicable to the concerned entity.

Question No.2

(a) Estimate the value of closing stock from the following information:

Opening stock of raw materials (10,000 units) ₹1,80,000; Purchase of Raw Materials (35,000 units) ₹7,00,000; Closing Stock of Raw Materials 7,000 units; Freight Inward ₹85,000; Self-manufactured packing material for purchased raw materials only ₹60,000 (including share of administrative overheads related to marketing sales ₹8,000); Demurrage charges levied by transporter for delay in collection ₹11,000; Normal Loss due to shrinkage 1% of materials ; Abnormal Loss due to absorption of moisture before receipt of materials 100 units. (8)

Answer:

Computation of value of closing stock of raw materials [Average Cost Method]

	Particulars	**Quantity (Units)**	**Amount (₹)**
	Opening Stock of Raw Materials	10,000	1,80,000
Add	Purchase of raw materials	35,000	7,00,000
Add	Freight inwards		85,000
Add	Demurrage Charges levied by transporter for delay in collection		11,000
			9,76,000
Less	Abnormal Loss of raw materials (due to absorption of moisture before receipt of materials) = [(7,00,000 + 85,000 + 11000) x 100]/35,000	(100)	(2,274)
Less	Normal loss of materials due to shrinkage during transit [1% of 35,000 units]	(350)	-----
Add	Cost of self-manufactured packing materials for purchased raw materials only (60,000 – 8,000)		52,000
	Cost of raw materials	**44,550**	**10,25,726**
Less:	Value of Closing Stock = Total Cost / (Total units – Units of Normal Loss) [10,25,726/(10,000+35,000 – 350)]x 7,000	(7,000)	(1,60,808)
	Cost of Raw Materials Consumed	**37,550**	**8,64,918**

Note:

(i) Units of normal loss adjusted in quantity only and not in cost, as it is an includible item
(ii) Cost of self-manufactured packing materials does not include any share of administrative overheads or finance cost or marketing overheads. Hence, marketing overheads excluded.
(iii) Abnormal loss of materials arised before the receipt of the raw materials, hence, valuation done on the basis of costs related to purchases only. Value of opening stock is not considered for arriving at the valuation of abnormal loss.
(iv) Demurrage charges paid to transporter is an includible item. Since this was paid to the transporter, hence considered before estimating the value of abnormal loss

Alternatively, Solving the Above Illustration Based on FIFO Method

Computation of value of closing stock of raw materials [FIFO Method]

	Particulars	**Quantity (Units)**	**Amount (₹)**
	Opening Stock of Raw Materials	10,000	1,80,000
Add	Purchase of raw materials	35,000	7,00,000
Add	Freight inwards		85,000
Add	Demurrage Charges levied by transporter for delay in collection		11,000
			9,76,000
Less	Abnormal Loss of raw materials (due to absorption of moisture before receipt of materials) = [(7,00,000 + 85,000 + 11000) x 100]/35,000	(100)	(2,274)
Less	Normal loss of materials due to shrinkage during transit = [1% of 35,000 units]	(350)	-----
Add	Cost of self-manufactured packing materials for purchased raw materials only (60,000 – 8,000)		52,000
	Cost of Raw Materials	**44,550**	**10,25,726**
Less:	Value of Closing Stock = Total Cost / (Total units – Units of Normal Loss) Where Total Cost = = [7,00,000 + 85,000 + 11,000 -2,274 + 52,000] = 8,45,726 And Total Units = [35,000 – 1% of 35,000] = 34,650 units Value of Closing Stock = [8,45,726 x 7,000]/ 34,650	(7,000)	(1,70,854)
	Cost of Raw Materials Consumed	**37,550**	**8,54,872**

Note:

(i) Since FIFO method is followed, hence for the purpose of estimating the units sold/used/consumed, it is presumed that there is no units left out of units in opening stock.
(ii) Since normal loss is in transit, hence it is calculated on units purchased only.

(b) Component 'Exe' is made entirely in cost centre 100. Material cost is 6 paise per component and each component takes 10 minutes to produce. The machine operator is paid 72 paise per hour, and the machine hour rate is ₹ 1.50. The setting up of the machine to produce the component 'Exe' takes 2 hours 20 minutes.

On the basis of this information, prepare a cost sheet showing the production and setting up cost, both in total and per component, assuming that a batch of:

(i) 10 components,
(ii) 100 components, and
(iii) 1,000 components is produced **(8)**

Answer:

Cost Sheet of Component 'PEE'

Batch Size	*10* *Total* ₹	*Per component* ₹	*100* *Total* ₹	*Per Component* ₹	*1000* *Total* ₹	*Per Component* ₹
Setting up Cost: (A)						
Machine Operators Wages *(2 hours 20 minutes @ 72 p.p.h.)*	1.68	0.168	1.68	0.0168	1.68	0.00168
Overheads *(2 hours 20 minutes @ ₹ 1.50 p.h.)*	3.50	0.350	3.50	0.035	3.50	0.0035
Production Cost : (B)						
Material Cost @ 6 p. per component	0.60	0.06	6.00	0.06	60.00	0.06
Machine Operators Wages *[Refer to Working Note (i)]*	1.20	0.12	12.00	0.12	120.00	0.12
Overheads *[Refer to*	2.50	0.25	25.00	0.25	250.00	0.12

Working Note (ii)]						
Total Cost (A + B):	9.48	0.948	48.18	0.4818	435.18	0.43518
Working Notes						
Components	10		100		1000	
(i) Operators Wages						
Time taken in minutes by machine Operators and machine @ 10 minutes per component	100		1000		10000	
Operators Wages @ 72 p. per hour (₹)		1.20		12.00		120.00
		$\left(\frac{100}{60} \times 0.72P\right)$		$\left(\frac{1000}{60} \times 0.72P\right)$		$\left(\frac{10000}{60} \times 0.72P\right)$
(ii)*Overhead expenses*						
Total overhead expenses in (₹) @ ₹ 1.50 per machine hour		2.50		25.00		250.00
		$\left(\frac{100}{60} \times Rs.1.50\right)$		$\left(\frac{1000}{60} \times Rs.1.50\right)$		$\left(\frac{10000}{60} \times Rs.1.50\right)$

Question No.3

(a) Your company uses a historical cost system and applies overheads on the basis of "pre-determined" rates. The following are the figure from the Trial Balance as at 31/3/10:-

Manufacturing overheads	**₹ 4,26,544 Dr.**
Manufacturing overheads applied	**₹ 3,65,904 Cr.**
Work-in-progress	**₹ 1,41,480 Dr.**
Finished goods stocks	**₹ 2,30,732 Dr.**
Cost of goods sold	**₹ 8,40,588 Dr.**

Give two methods for the disposal of the unabsorbed overheads and show the profit implications of each method. (8)

Answer.

Actual overheads	₹ 4,26,544
Overhead recovered	₹ 3,65,904
Under absorbed Overhead	₹ 60,640

The two methods for the disposal of the under-absorbed overheads in this problem may be:-

(1) Write off the under – absorbed overhead to Costing Profit & Loss Account.

(2) Use supplementary rate, to recover the under-absorbed overhead.

According to first method, the total unabsorbed overhead amount of ₹ 60,640 will be written off to Costing Profit & Loss Account. The use of this method will reduce the profits of the concern by ₹ 60,640 for the period.

According to second method, a supplementary rate may be used to adjust the overhead cost of each cost unit. The under-absorbed amount in total may, at the end of the accounting period, be apportioned on ratio basis to the three control accounts, viz, work-in-progress, finished goods stock and cost of goods sold account. Apportioning of under-absorbed overhead can be carried out by using direct labour hours/machine hours/the value of the balances in each of these accounts, as the basis. Prorated figures of under-absorbed overhead over work-in-progress, finished goods stock and cost of goods sold in this question on the basis of values, of the balances in each of these accounts are as follows:-

		Additional Overhead (Under-absorbed)	*Total*
	₹	₹	₹
Work-in-progress	1,41,480	7,074*	1,48,554
Finished Goods Stock	2,30,732	11,537**	2,42,269
Cost of Goods Sold	8,40,588	42,029***	8,82,617
	12,12,800	60,640	12,73,440

By using this method, the profit for the period will be reduced by ₹ 42,029 and the value of stock will increase by ₹ 18,611. The latter will affect the profit of the subsequent period.

Working Notes

The apportionment of under-absorbed overhead over work-in-progress, finished goods stock and cost of goods sold on the basis of their value in the respective account is as follows:-

*Overhead to be absorbed by work-in-progress $= \frac{₹\ 60{,}640}{12{,}12{,}800} \times 1{,}41{,}480 = ₹\ 7{,}074$

**Overhead to be absorbed by finished goods $= \frac{₹\ 60{,}640}{12{,}12{,}800} \times 2{,}30{,}732 = ₹\ 11{,}537$

***Overhead to be absorbed by cost of goods sold $= \frac{₹\ 60{,}640}{12{,}12{,}800} \times 8{,}40{,}588 = ₹\ 42{,}029$

(b) A manufacturing unit produces two products X and Y. The following information is furnished:

Particulars	Product X	Product Y
Units produced (Qty)	**20,000**	**15,000**
Units Sold (Qty)	**15,000**	**12,000**
Machine Hours utilised	**10,000**	**5,000**
Design charges	**15,000**	**18,000**
Software development charges	**24,000**	**36,000**

Royalty paid on sales ₹54,000 [@ ₹2 per unit sold, for both the products]; Royalty paid on units produced ₹35,000 [@ Re.1 per unit purchased, for both the products], Hire charges of equipment used in manufacturing process of Product X only ₹5,000, Compute the Direct Expenses as per CAS 10. (8)

Answer.

Computation of Direct Expenses

	Particulars	Product X	Product Y
	Royalty paid on Sales	30,000	24,000
Add	Royalty paid on units produced	20,000	15,000
Add	Hire charges of equipment used in manufacturing process of Product X only	5,000	----
Add	Design Charges	15,000	18,000
Add	Software development charges related to production	24,000	36,000
	Direct Expenses	**94,000**	**93,000**

Note:

(i) Royalty on production and royalty on sales are allocated on the basis of units produced and units sold respectively. These are directly identifiable and traceable to the number of units produced and units sold. Hence, this is not an apportionment.
(ii) No adjustments are made related to units held, i.e. closing stock.

Question No.4

(a) State the treatment of the following items in the cost records: [2x 4 = 8]

(i) Cost related to after-sales service

(ii) Packing cost;

(iii) Bad Debts;

(iv) Royalty on production of goods

Answer.

(i) After Sales Service:

This relates to services rendered after a product is sold. If the service is rendered during the warranty period, it is normally free of cost. The cost of in-warranty service is treated as S & D Overhead and accounted for accordingly. The services provided after expiry of warranty period, are normally charged to the customer. In such cases, the actual cost incurred on such service is collected as per element in the routine way and treated as cost of production of the service. Let us take sale of a car as an example. Usually, there's one year warranty for manufacturing defects and many companies also provide 3 year or 40000 km servicing free. The cost of this service being free is treated as S & D Overhead. The services after that period will be billed to the customer. A job card is issued for each car when it comes for servicing and the costs of parts, consumables and labour time are booked against that job number. This cost will be charged off against the billing done for service.

(ii) Packing Costs:

Packing may refer to primary packing and secondary packing. Primary packing is the minimum necessary without which a product cannot be handled. Liquid products must either have bottles or sachets. This packing is considered as direct material cost. These bottles may be further kept in bigger boxes or cartons for ease of transportation, which is nothing but a distribution cost. This packing cost is treated as S & D Overhead.

(iii) Bad Debts:

We know bad debts refer to customers who do not pay money after having purchased the product. This situation arises after the sale is done. Many experts say that bad debt is not an item of expense but it's a financial loss and thus should be excluded for the purpose of costing. However, normal bad debts may be considered as selling expense and included in the cost. An exceptional case like bankruptcy of a big institution may be excluded from cost.

(iv) Royalties:

Royalties are prices paid to acquire the right to manufacture and/or sell some goods. When the royalty is paid to acquire the right to manufacture or to produce the cost of the royalty should be charged as a production cost and included in production overhead. Where, however, the royalty is the price of the right to sell, the cost of such royalty should form a part of selling and distribution cost and included in selling overheads. If royalty is paid both for production and sales the cost of such royalty should be apportioned between production costs and selling cost on some equitable and appropriate such royalty cost should be treated as direct cost of the particular product.

(b) The following information relates to the activities of a production department of factory for a certain period.

	₹
Material used	**36,000**
Direct Wages	**30,000**

Labour hours	**12,000**	
Hours of Machinery-operation		**20,000**
Overhead Chargeable to the Dept		**25,000**

On one order carried out in the department during the period the relevant data were:-

Material used (₹)	**6,000**	
Direct Wages (₹)	**4,950**	
Labour hours worked	**1,650**	**Hrs.**
Machine Hours		**1,200**

Calculate the overheads chargeable to the job by four commonly used methods. [8]

Solution:

The four commonly used methods of absorbing or recovering overheads are as follows:

1. % of overheads on material = (25,000 / 36,000) x 100 = 69.44%
2. % of overheads on direct wages = (25,000 / 30,000) x 100 = 83.33%
3. Overhead rate per labour hour = 25,000 / 12,000 = 2.083
4. Machine hour rate method = 25,000 / 20,000 = 1.25

The overheads chargeable to job under the above methods is as follows:

1. Material = 6,000 x 69.44% = 4,166.40
2. Wages = 4,950 x 83.33% = 4,125
3. Labour hour rate = 1650 x 2.083 = ₹ 3,437
4. Machine hour rate = 1,200 x 1.25 = ₹ 1,500

Question No.5

(a) In a factory the expenses of factory are charged on a fixed percentage basis on wages and office overhead expenses are calculated on the basis of percentage of works cost.

	I Order (₹)	**II Order (₹)**
Material	**12,500**	**18,000**
Wages	**10,000**	**14,000**
Selling price	**44,850**	**61,880**
Percentage of profit on cost	**15%**	**12%**

Find the rate of Factory OH and Office OH. [8]

Solution:

Let 'X' and 'Y' be the % of Works Overhead on wages and Office Overhead on works cost respectively.

Particulars	Order I	Order II
Material	12,500	18,000

Wages	10,000	14,000
Prime Cost	22,500	32,000
(+) Factory OH's	(10,000 x *X*/100) = 100X	(14,000 x *X*/100) = 140X
Works Cost	22,500 + 100X	32,000 + 140X
(+) Office Overheads [(100 X + 22,500) x Y/100] [(140 X + 32,000) x Y/100]	XY + 225Y	1.4XY + 320Y
Total Cost	100X + XY + 225Y + 22,500	140X + 1.4XY + 320Y + 32,000
Cost	44,850 x (100/115) = 39,000	61,880 x (100/112) = 55,250

100X + XY + 225Y + 22,500 = 39,000

$\Rightarrow$ 100X + XY + 225Y = 16,500 $\rightarrow$ Equ. (1)

140X + 1.4XY + 320Y + 32,000 = 55,250

$\Rightarrow$ 140X + 1.4XY + 320Y = 23,250 $\rightarrow$ Equ. (2)

Equ. (1) x 1.4 $\Rightarrow$ 140X + 1.4XY + 315Y = 23,100

Equ. (2) $\Rightarrow$ 140X + 1.4XY + 320Y = 23,250

(–) (–) (–) (–)

5Y = 150

Therefore, Y = 150/50 = 30

Substituting the value of Y in Equ. (1), we get X

100X + 30X + 225 x 30= 16,500 $\rightarrow$ Equ. (1)

130X + 6750 = 16,500

130X = 9,750

X = 9,750/130 = 75

% of Factory OH on wages = 75%

% of Office OH on works cost = 30%

(b) The following data is available in respect of a machine:

Cost of machine ₹ 10,000

Estimated scrap value ₹ 1,000

Working life of the machine 6 years

The machine is discarded because of obsolescence after 4 years of service and sold for ₹ 2,000. What is the resultant loss and how would you treat the same in Cost Accounts? [4]

Solution:

₹ 2,000, Entire loss may be charged to Costing Profit & Loss A/c in the year of sale or may be spread over the balance period of life of the machine

(c) State the pre-requisites of a Material control system. [4]

Answer.

The following points require mention in the material control system for the firm:

(i) As direct materials constitute about 65% of the total cost of production, correctly assess the requirements of materials for the standard products by technical studies. This will enable comparison of actual consumption with standard requirements and corrective action whenever necessary.

(ii) Where possible standardize and simplify material requirements.

(iii) If the company is a multi-unit enterprize centralize purchases under a competitive buyer to the extent possible.

(iv) Ensure proper co-ordination among departments engaged in procurement, receiving, inspection, storage, issue and accounting.

(v) Establish reliable channels of supply of materials, so that quality and competitive price are ensured and supplies are received in time without causing losses due to storage of too much quantity and without causing stoppage of work.

(vi) Operation of the concept of ABC analysis, maximum, minimum and ordering levels.

(vii) Use of standard forms for Purchase requisition, Purchase order, Material requisitions, Material Transfer Notes, Bill of Materials etc.

(viii) Issue of materials should be only against duly authorized Material Requisition issued by competent persons.

(ix) A sound system of internal check should be in operation so that all transactions relating to materials also should be checked by properly authorized persons.

(x) A proper Management Information System should be in place to provide information relating to production, consumption, inventory balances, obsolete and slow moving materials etc. at regular intervals for effective regular follow up action.

Section B – Financial Management
(Full Marks: 40)

Answer Question no.1 which is compulsory and any two from the rest in this section.

1. Choose the most appropriate one from the stated options.

a) A company operates at a production level of 1,000 units. The contribution is ₹60 per unit, operating leverage is 6, combined leverage is 24. If tax rate is 30%, what would be its earnings after tax? [2]

b) Which of the following assumption is wrong under MM approach?

i) Capital market is perfect.

ii) There is no transaction cost.

iii) The dividend payout ratio is 0%.

iv) There are no corporate taxes. [1]

c) A company has paid ₹3 as current dividend; the growth rate of dividend paid by the company is 8%. If the cost of equity is 12%, the price of the company's share in nearest ₹three year hence will be:

i) **₹100**
ii) **₹118**
iii) **₹110**
iv) **₹102** **[2]**

d) The average daily sales of a company are ₹5 lac. The company normally keeps a cash balance of ₹80000.If the weighted operating cycle of the company is 45 days, its working capital will be

i) ₹112.9 lac.
ii) ₹113.3 lac
iii) ₹5.8 lac
iv) ₹225.8 lac. **[2]**

e) Bond issued at a discount and repaid at a face value is called

i) Zero –coupon bond
ii) Eurobond
iii) Yankee bond
iv) Income bond

[1]

Solution

a) Degree of combined Leverage = Contribution / EBT

24 = ₹60,000 / EBT

EBT =₹2500

Less: income tax (30%) = (₹750)

EAT ₹1,750

b) iii) The dividend payout ratio is 0%. As per MM approach the dividend payout ratio is 100%, i.e. there are no retained earnings.

c) iv)102

P3 =D4/Ke- g

=Do (1+g) ^{4} /Ke- g

= 3(1+0.08)^4/0.12-0.08

=3(1.360)/0.04

=4.08/0.04

=₹ 102/-

d) ₹ 225.8 lac.

The working capital requirement is for 45 days of the weighted operating cycle plus normal cash balance
= Sales per day * weighted operating cycle+ cash balance requirement
= ₹ 5 lac *45 + ₹0.80 lac=₹ 225.80 lac.

e) i)- Zero-coupon Bond

2.

a) Sweetu Ltd's. Operating income is ₹5, 00,000. The firms cost of debt is 10% and currently firm employs ₹15, 00,000 of debt. The overall cost of capital of the firm is 15%. You are required to determine:
i. Total value of the firm
ii. Cost of Equity

(b) X Ltd. is foreseeing a growth rate of 14% per annum in the next 2 years. The growth rate is likely to fall to 12 % for the third year and fourth year. After that the growth rate is expected to stabilize at 10% per annum. If the last dividend paid was ₹2.25 per share and the investors' required rate of return is 18%, find out the intrinsic value per share of X Ltd. as of date. You may use the following table:

Years	0	1	2	3	4	5
Discounting Factor at 18%	1	0.85	0.72	0.61	0.52	0.44

(c) What are difference between Funds Flow Statement and Cash Flow Statement?
[4+6+6=16]

Solution

a) i) Statement showing value of the firm

	Amount in (₹)
Net operating Income/EBIT	5,00,000
Less: interest on Debentures (10% of ₹15,00,000)	1,50,000
Earnings Available for equity shareholders	3,50,000
Total cost of Capital (K_o) (given)	15%
Value of the Firm VF = $\frac{EBIT}{K_o} = \frac{₹5,00,000}{0.15}$	33,33,333
(ii) Market value of Debt (D)	15,00,000
Market value of equity $V_E = V_F - V_D$ = ₹33,33,333 – ₹15,00,000	18,33,333

ii) Cost of equity (Ke) = $\frac{\text{Earnings Available for Equity Holders}}{\text{Market value of Equity}}$

= $\frac{\text{EBIT – Interest paid on Debt}}{\text{Market value of Equity}}$

$$= \frac{₹5,00,000 - ₹1,50,000}{₹18,33,333}$$

= 19.09%

b) Present value of dividend stream for first 2 years.

₹ 2.25 (1.14) × .85 + 2.25 $(1.14)^2$ × .72

₹ 2.565 × .85 + 2.924 × .72

₹ 2.18 + 2.11 = 4.29 (A)

Present value of dividend stream for next 2 years

₹ 2.924 (1.12) × .61 + 2.924 $(1.12)^2$ × .52

₹ 3.27 × .61 + 3.67 × .52

₹ 2 + 1.91 = 3.91 (B)

Market value of equity share at the end of 4th year computed by using the constant dividend growth model would be:

$$P_4 = \frac{D_5}{K_s - g_n}$$

Where D_5 is dividend in the fifth year, g_n is the growth rate and K_s is required rate of return.

Now $D_5 = D_4 (1 + g_n)$

∴ D_5 = ₹3.67 (1 + 0.10)

= ₹4.037

∴ P_4=₹4.037/ (.18-.10) =4.037/.08=₹50.46

Present market value of P_4 = 50.46 × .52 = ₹26.239 (C)

Hence, the intrinsic value per share of X Ltd. would be

A + B + C i.e. ₹4.29 + 3.91 + 26.239 = ₹34.439

c) The following are the main differences between a Funds Flow Statement and a Cash Flow Statement:-

Funds Flow Statement	**Cash Flow Statement**
1. Funds Flow Statement reveals the change in working capital between two Balance Sheet dates	Cash Flow Statement reveals the changes in cash position between two balance sheet dates.
2. Funds Flow Statement is based on accounting	Cash Flow Statement is based on cash basis of accounting
3. In the case of Funds Flow Statement a	No such schedule of changes in

Funds Flow Statement	Cash Flow Statement
schedule of changes in working capital is prepared.	working capital is prepared for a Cash Flow Statement.
4. Funds Flow Statement is useful in planning, Intermediate and long term financing.	Cash Flow Statement as a tool of financial analysis is more useful for short-term analysis and cash planning.
5. Funds Flow Statement deals with all components of working capital.	Cash Flow Statement deals only with cash and cash equivalents.
6. Funds Flow Statement reveals the sources and application of funds. The difference represents net increase or decrease in working capital.	Cash Flow Statement is prepared by taking into consideration the inflows and outflows in terms of operating, investing and financing activities. The net difference represents the net increase or decrease in cash and cash equivalents.

3.

a) The following information has been extracted from the records of a company

Product cost Sheet	₹ per unit
Raw Materials	**45**
Direct Labour	**20**
Overheads	**40**
Total	**105**
Profit	**15**
Selling price	**120**

A. Raw materials are in stock on an average of two months
B. The materials are in process on an average for 4 weeks. The degree of completion 50%.
C. Finished goods stock on an average is for one month.
D. Time lag in payment of wages and overheads is $1\frac{1}{2}$ weeks.
E. Time lag in receipt of proceeds from debtors is 2 months.
F. Credit allowed by suppliers is one month.
G. 20% of the output is sold against cash.
H. The company expects to keep a cash balance of ₹1, 00,000.
I. Take 52 weeks per annum.
J. The company is poised for a manufacture of 1, 04,000 units in the year.

You are required to prepare a statement showing the Working Capital requirements of the Company. Using net operating cycle Method.

b) The data relating to two companies are as given below:

Particulars	Company A	Company B
Equity capital	**₹6,00,000**	**₹3,50,000**
12% debentures	**₹4,00,000**	**₹6,50,000**
Output (units) per annum	**60,000**	**15,000**
Selling Price/unit	**₹30**	**₹250**
Fixed costs per annum	**7,00,000**	**14,00,000**
Variable cost per unit	**₹10**	**₹75**

You are required to calculate the Operating Leverage, Financial leverage and combined leverage of two companies.

c) A PX company has a profit margin of 30% and asset turnover of 3 times. What is the company's return on investment? How will this return on investment vary if

i) Profit margin is increased by 10%?
ii) Asset turnover is decreased to 2 times?
iii) Profit margin is decreased by 10% and asset turnover is increase to 4 times?

[5+5+6=16]

Solution

a) Statement showing the working capital requirement using the net operating cycle method.

	Raw material	Labour	Overhead
Stock	8	-	-
W.I.P	2	2	2
Finished Goods	4	4	4
Debtors	8	8	8
	22	14	14
Less: time lag in payment of wages and overheads	-	1.5	1.5
Credit allowed by supplier	4	-	-
	18	12.5	12.5

Unit = 104000/52 week = 2000 units per week.

Cash Balance	1,00,000
Raw Material (2000×18×45)	16,20,000
Labour (2000×12.5×20)	5,00,000
Overhead (2000×12.5×40)	10,00,000
Net Working Capital Requirement	**32,20,000**

b) Computation of degree of operating Leverage, Financial Leverage & combined Leverage of two companies:

Particulars	Company A	Company B
Sales revenue (60,000 units x ₹30)(15,000 units x ₹250)	18,00,000	37,50,000

Less: variable costs (60,000 units x ₹10) (15,000 units x ₹75)	(6,00,000)	(11,25,000)
Contribution	12,00,000	26,25,000
Less: Fixed costs	(7,00,000)	(14,00,000)
EBIT	5,00,000	12,25,000
Less: Interest @ 12% on debentures	(48,000)	(78,000)
EBT	4,52,000	11,47,000
DOL = $\frac{\text{Contribution}}{\text{EBIT}}$	$\frac{₹12,00,000}{₹5,00,000} = 2.4$	$\frac{₹26,25,000}{₹12,25,000} = 2.14$
DFL = $\frac{\text{EBIT}}{\text{EBT}}$	$\frac{₹5,00,000}{₹4,52,000} = 1.11$	$\frac{₹12,25,000}{₹11,47,000} = 1.07$
DCL = DOL x DFL	(2.4 x 1.11) = 2.66	(2.14 x 1.07) = 2.29

c) Net profit ratio = 30% (given)
Assets turnover ratio = 3 times (given)
Return on Investment (ROI) = Net Profit ratio x Assets turnover ratio
= 30% x 3 times = 90%

(i) If net profit ratio is increased by 10%:

Then Revised Net Profit Ratio = 30 + 10 = 40%
Asset Turnover Ratio (as before) = 3 times
∴ ROI = 40 % x 3 times = 120%

(ii) If assets turnover ratio is decreased to 2 times:

NP Ratio (as before) = 30%
Revised Asset Turnover Ratio = 2 times
∴ ROI = 30% x 2 times = 60 %

(iii) If net profit ratio falls by 10% and assets turnover ratio raises to 4 times:
Then Revised NP Ratio = 30 – 10 = 20%
Revised Asset Turnover Ratio = 4 times
∴ ROI = 20% x 4 = 80%

4.

a) **XYZ Ltd. Is considering two mutually- exclusive projects. Both require an initial cash outlay ₹10,000 each for machinery and have a life of 5 Years.The Company's required rate of return is 10% and it pays tax at 50%. The projects will be depreciated on a straight-line basis. The net cash flows (before taxes) expected to be generated by the projects and the present value (PV) factor (at 10%) are as follows:**

	Year				
	1	**2**	**3**	**4**	**5**
	₹	**₹**	**₹**	**₹**	**₹**
Project 1	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**
Project 2	**6,000**	**3,000**	**2,000**	**5,000**	**5,000**
PV factor (at 10%)	**0.909**	**0.826**	**0.751**	**0.683**	**0.621**

You are required to calculate

i) The Pay Back Period of each project;
ii) The NPV and the profitability index of each project.

b) Write short notes on any two of the following:
i) Global Depository Receipt (GDR) and American Depository Receipt (ADR)
ii) Debt Service Coverage Ratio (DSCR)
iii) Trade Related Aspects of Intellectual Property Rights (TRIPS).

[10+3+3=16]

Solution

a) CALCULATION OF NET INCOME AND NET CASH FLOW AFTER TAXES:

Project – 1

Year	Cash Flow before tax (₹)	Depreciation (₹)	Income before tax (₹)	Tax (₹)	Net Income (₹)	Net cash Flow after tax (₹)
1	4000	2000	2000	1000	1000	3000
2	4000	2000	2000	1000	1000	3000
3	4000	2000	2000	1000	1000	3000
4	4000	2000	2000	1000	1000	3000
5	4000	2000	2000	1000	1000	3000

Project – 2

Year	Cash Flow before tax (₹)	Depreciation (₹)	Income before tax (₹)	Tax (₹)	Net Income (₹)	Net cash Flow after tax (₹)
1	6000	2000	4000	2000	2000	4000
2	3000	2000	1000	500	500	2500
3	2000	2000	-	-	-	2000
4	5000	2000	3000	1500	1500	3500
5	5000	2000	3000	1500	1500	3500

(i) Pay Back Period:

PROJECT – 1
Cash outlay ₹10,000
Cash flow p.a. ₹3,000
Payback period: 10,000 / 3,000 = 3.33 years

PROJECT – 2
Cash inflows: ₹ (4000 + 2500 + 2000) = ₹8500 in 3 Years.
4th Year Balance – ₹1500.
Therefore, 1500/3500 = 0.43 Years
Payback period = 3 Years + 0.43 Years = 3.43 years.

(ii) Net Present value (NPV):

PROJECT – 1:

Present value = 3000 x 3.790 = ₹ 11370
(0.909 + 0.826 + 0.751 + 0.683 + 0.621)
Less: Initial cash outlay = ₹10000
Net Present value (NVP) = ₹1370

PROFITABILITY INDEX = 11370/10000 = 1.370

PROJECT – 2:

Net cash flow after tax (₹)	PV factor	Present Value (₹)
4000	0.909	3636.00
2500	0.826	2065.00
2000	0.751	1502.00
3500	0.683	2390.50
3500	0.621	2173.50
	11767	
Less: Initial cash outlay		10000.00
Net Present value (NPV)		1767

PROFITABILITY INDEX = 11767/10000 = 1.177

b)

i) Global Depository Receipt (GDR) and American Depository Receipt (ADR)

Global Depository Receipt (GDR)

A GDR is a negotiable instrument, basically a bearer instrument which is traded freely in the international market either through the stock exchange or over the counter or among Qualified International Buyers (QIB).

It is denominated in US Dollars and represents shares issued in the local currency.

Characteristics

1. The shares underlying the GDR do not carry voting rights.
2. The instruments are freely traded in the international market.
3. The investors earn fixed income by way of dividend.
4. GDRS can be converted into underlying shares, depository/ custodian banks reducing the issue.

American Depository Receipt (ADR)

The depository receipt in the US market is called ADR. ADRs are those which are issued and listed in any of the stock exchanges of US. It is an investment in the stock of non- US corporation trading in the US stock exchange.

Characteristics

1. The ADRs may or may not have voting rights.
2. The ADRs are issued in accordance with the provisions laid by SEC, USA.
3. The ADRs are bearer negotiable instrument and the holder can sell it in the market.
4. The ADRs once sold can be re- issued.

The operation of ADR- similar to that of GDR.

ii) Debt Service Coverage Ratio (DSCR)

This ratio indicates whether the business is earning sufficient profits to pay not only the interest charged, but also whether due of the principal amount. The ratio is calculated as follows:

$$\text{Debt Service Coverage Ratio} = \frac{\text{Profit after taxes} + \text{Depreciation} + \text{Interest on Loan}}{\text{Interset on Loan} + \text{loan repayment in a year}}$$

Significance: The ratio is the key indicator to the lender to assess the extent of ability of the borrower to service the loan in regard to timely payment of interest and repayment of loan installment. A ratio of 2 is considered satisfactory by the financial institutions the greater debt service coverage ratio indicates the better debt servicing capacity of the organization.

iii) Trade Related Aspects of Intellectual Property Rights (TRIPS)

TRIP is an international agreement administered for the first time by the World Trade Organization (WTO) into the international trading system. It sets down minimum standards for many forms of intellectual property (IP) regulation. Till date, it remains the most comprehensive international agreement on intellectual property. It was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994.

TRIPS contains requirements that nations' laws must meet for: copyright rights, including the rights of performers, producers of sound recordings and broadcasting organizations; geographical indications, including appellations of origin; industrial designs; integrated circuit layout-designs; patents; monopolies for the developers of new plant varieties; trademarks; trade dress; and undisclosed or confidential information. TRIPS also specify enforcement procedures, remedies, and dispute resolution procedures.

In 2001, developing countries were concerned that developed countries were insisting on an overly-narrow reading of TRIPS, initiated a round of talks that resulted in the Doha Declaration: a WTO statement that clarifies the scope of TRIPS; stating for example that TRIPS can and should be interpreted in light of the goal "to promote access to medicines for all."